

ABSTRACT

A method and system is presented for treating moving target regions in a patient's anatomy by creating radiosurgical lesions. CT scan data representative of a pre-operational diagnostic image of a target region are generated. The plurality of x-rays are generated with an x-ray source. Based on the CT scan data, a treatment plan is generated that defines the requisite beam intensities and paths. The position of the target region is determined in near real time. The composite motion of the target region, due to respiration and heartbeat, is tracked. Signals representative of the change (caused by the composite motion) in the position of the target region at a current time, compared to the position of the target region in the CT scan, are generated. In response, the relative position of the x-ray source and the target is adjusted, so as to account for the composite motion of the target. This process is repeated throughout the treatment. As a result, the x-rays are continually focused onto the target region in accordance with the treatment plan, while the x-ray source tracks the motion of the target region.